Name: Haunia L. Gómez Wokskill   **ID#:** A01570193 **Date:** 17 / 01 / 18

very good!!
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Answer the following problems with complete procedure.

$f(x) = f(a) + f'(x)(x - x_1)$
$dy = f'(x)(dx)$

1. Find the **approximate** value of $(3.04)^3$ (20 pts)

$f(x) = x^3$ $f(x) \approx (3)^3 + 3(3)^2(0.04)$

$f'(x) = 3x^2$

$\approx 27 + 1.08$

Aprox. value ≈ 28.08 ✓

2. Given the equation $f(x) = x^2 - 2x + 3$ find the line tangent to the curve at $x = a = 0$. (20 pts)

$f(x) = 3 + [-2(x - 0)]$

$f(0) = 3$ $y = 3 - 2x$ ✓

$f'(x) = 2x - 2$

$f'(0) = -2$

3. The edge of a cube was found to be 20 cm. with a possible error in measurement of 0.1cm. Estimate the maximum possible error in computing the volume of the cube (20 pts)

$dx = 0.1$ cm

$V = \ell^3$

$v' = 3\ell^2(0.1)$

$v' = 3(20)^2(0.1)$

Max. error:

$20^3 \pm 120$ cm^3 ✓